

## Department: Science

### Staff:

Mr Mansbridge  
Ms Padda  
Ms Popat  
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### Key Stage 3

The Key Stage 3 Science course at Riverside School is designed to provide students with the fundamental ideas and concepts required for studying science at GCSE level. The course is designed to give students scientific knowledge, build practical skills whilst allowing them to develop enthusiasm and curiosity for science.

Students will study a range of topics that explore concepts in Biology, Physics and Chemistry in everyday contexts. Students are given the opportunity to develop key mathematical and literacy skills relevant to science, preparing them for the demanding GCSEs ahead.

### Year 7 Topics

- Cells
- Solids, Liquids and Gases
- Forces
- Respiration
- Atoms, Elements and Compounds
- Energy
- Digestion
- Chemical Reactions
- Electricity
- Scientific Investigation

### Year 8 Topics

- Plants and Ecology
- Separating Techniques

- Heat Transfer and Particle Theory
- Health and Disease
- Chemical Reactions II
- Waves and Space
- Variation and Reproduction
- Earth
- Magnetism and Generating Electricity
- Scientific Investigation

### Key Stage 4

The Science department offer two options for studying science at GCSE level. Students will either study towards a separate science course or a combined science course. The curriculum aims to deliver scientific knowledge and skills to make students scientifically literate and understand everyday issues related to science.

The course is also an excellent platform for Key Stage 5 study and future careers in Medicine, Dentistry, Pharmaceuticals, Nursing, Engineering and Agriculture.

The topics studied over the course of Year 9 to 11 include:

<b>Biology</b>	<b>Chemistry</b>	<b>Physics</b>
Cell Biology Organisation Infection and response Bioenergetics Homeostasis and response Inheritance, variation and evolution Ecology	Atomic structure Bonding, structure and properties Quantitative chemistry Chemical changes Energy changes The rate of chemical change Organic chemistry Chemical analysis Chemistry of the atmosphere Using resources	Energy Electricity Particle model Atomic structure Forces Waves Magnetism and electromagnetism Space Physics (Separate only)

## Syllabus Details

AQA GCSE Combined Science: Trilogy (8464)

or

AQA GCSE Biology (8464), GCSE Chemistry (8462) and GCSE Physics (8463)

## Assessment

Assessment is through terminal examinations. In Combined science all students will sit six exam papers lasting 1hr 15mins each accounting for 16.7% of the mark towards the final two GCSE grades. In Separate science, each of the three GCSEs is assessed by two 1hr 45min exams accounting for 50% of the grade.

Students will be supported through regular teacher marking and feedback as well as regular assessments and mock exams. They will regularly be supplied with past examination questions and taught how to structure their revision notes.

## Requirements

This is a compulsory subject at Key Stage 3 and 4 followed by all students in the School.

## Key Stage 5 Biology

This course is designed for students who are interested in studying the principles of living organisms and how they interact with the environment around them.

## Course Content

Students will follow AQA Biology (7402) and there are eight core units of content studied over the two years:

1. Biological molecules
2. Cells
3. Organisms exchange substances with their environment
4. Genetic information, variation and relationships between organisms
5. Energy transfers in and between organisms
6. Organisms respond to changes in their internal and external environments
7. Genetics, populations, evolution and ecosystems
8. The control of gene expression

## Key Stage 5 Chemistry

This course is designed for students who are interested in studying substances; what they are made of, how they interact with each other as well as their role in living things.

## Course Content

Students will follow OCR Chemistry A (H432) and there are six core units of content studied over the two years:

1. Development of practical skills in chemistry
2. Foundations in chemistry
3. Periodic table and energy
4. Core organic chemistry
5. Physical chemistry and transition elements
6. Organic chemistry and analysis

## Key Stage 5 Physics

This course is designed for students who are interested in the fundamental nature of almost everything that we know, ranging from the smallest matter to distant space.

## Course Content

Students will follow OCR Physics A (H556) and there are six core units of content studied over the two years:

1. Development of practical skills in physics
2. Foundations in physics
3. Forces and motion
4. Electrons, waves and photons
5. Newtonian world and astrophysics
6. Particles and medical physics

## SMSC (spiritual, moral, social and cultural development + extracurricular links)

Many areas of science encourage our students to consider moral and ethical arguments and develops their ability to consider the social implications of study in the world around us. Topics such as embryonic screening, stem cells, sustainability of resources, renewable energy and the greenhouse effect teach our students of the ever increasing pressures of a growing population and advancements in science and the different sides of the arguments that may exist. We aim to teach our students to dissect and evaluate information in order to make informed judgements.

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